

PCT

NOTIFICATION OF TRANSMITTAL
OF COPIES OF TRANSLATION
OF THE INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY
(CHAPTER I OR CHAPTER II
OF THE PATENT COOPERATION TREATY)
(PCT Rules 44bis.3(c) and 72.2)

From the INTERNATIONAL BUREAU

Global Intellectual Property

17. Aug. 2006

BASF AKTIENGESELLSCHAFT
67056 Ludwigshafen
ALLEMAGNE

1. AST
2. REF

Date of mailing (day/month/year) 03 August 2006 (03.08.2006)	To:
Applicant's or agent's file reference 0000054953	
International application No. PCT/EP2004/011025	IMPORTANT NOTIFICATION
Applicant BASF AKTIENGESELLSCHAFT et al	International filing date (day/month/year) 02 October 2004 (02.10.2004)

El: Phase beendet 13.03.2006

1. Transmittal of the translation to the applicant.



The International Bureau transmits herewith a copy of the English translation of the international preliminary report on patentability (Chapter I).



The International Bureau transmits herewith a copy of the English translation of the international preliminary report on patentability (Chapter II).

2. Transmittal of the copy of the translation to the designated or elected Offices.

The International Bureau notifies the applicant that copies of that translation have been transmitted to the following designated or elected Offices requiring such translation:

None

The following designated or elected Offices, having waived the requirement for such a transmittal at this time, will receive copies of that translation from the International Bureau only upon their request:

AE, AG, AL, AM, AP, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EA, EC, EE, EG, EP, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OA, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

3. Reminder regarding translation into (one of) the official language(s) of the elected Office(s).

The applicant is reminded that, where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability (Chapter II).

It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned within the applicable time limit (Rule 74.1). See Volume II of the PCT Applicant's Guide for further details.

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 0000054953	FOR FURTHER ACTION		See item 4 below
International application No. PCT/EP2004/011025	International filing date (<i>day/month/year</i>) 02 October 2004 (02.10.2004)	Priority date (<i>day/month/year</i>) 09 October 2003 (09.10.2003)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant BASF AKTIENGESELLSCHAFT			

1.	This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).		
2.	This REPORT consists of a total of 9 sheets, including this cover sheet. In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.		
3.	This report contains indications relating to the following items:		
	<input checked="" type="checkbox"/> Box No. I	Basis of the report	
	<input checked="" type="checkbox"/> Box No. II	Priority	
	<input type="checkbox"/> Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	
	<input type="checkbox"/> Box No. IV	Lack of unity of invention	
	<input checked="" type="checkbox"/> Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	
	<input type="checkbox"/> Box No. VI	Certain documents cited	
	<input type="checkbox"/> Box No. VII	Certain defects in the international application	
	<input type="checkbox"/> Box No. VIII	Certain observations on the international application	
4.	The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).		

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 338 82 70	Date of issuance of this report 27 July 2006 (27.07.2006)
	Authorized officer Ellen Moyse e-mail: pt05@wipo.int

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

PCT

Translation

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

<div style="border: 1px solid black; width: 100%; height: 100%;"></div>		Date of mailing (day/month/year)	See Form PCT/ISA/210 (sheet 2)
Applicant's or agent's file reference 0000054953		FOR FURTHER ACTION See paragraph 2 below	
International application No. PCT/EP2004/011025	International filing date (day/month/year) 02.10.2004	Priority date (day/month/year) 09.10.2003	
International Patent Classification (IPC) or both national classification and IPC A01N43/90			
Applicant BASF AKTIENGESELLSCHAFT			

1. This opinion contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|--|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the opinion |
| <input checked="" type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/EP	Authorized officer
Facsimile No.	Telephone No.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/EP2004/011025

Box No. I

Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language
_____, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

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Box No. II

Priority

1. ☒ The following document has not yet been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/EP2004/011025

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims <u>1-9</u>	YES
	Claims _____	NO
Inventive step (IS)	Claims <u>1-9</u>	YES
	Claims _____	NO
Industrial applicability (IA)	Claims <u>1-9</u>	YES
	Claims _____	NO

2. Citations and explanations:

Reference is made to the following prior art documents (D1-D7) which are cited in the international search report:

- ✓ D1: EP 0 988 790 A
- ✓ D2: WO 98/46607 A
- ✓ D3: DEBIEU DANIELE ET AL: "The hydroxyanilide fenhexamid, a new sterol biosynthesis inhibitor fungicide efficient against the plant pathogenic fungus Botryotinia fuckeliana (Botrytis cinerea)" PEST MANAGEMENT SCIENCE, vol. 57, no. 11, November 2001 (2001-11), pages 1060-1067
- ✓ D4: US 5 593 996 A
- ✓ D5: US 6 268 371 B1
- ✓ D6: EP 0 626 135 A
- ✓ D7: EP 1 064 846 A

Novelty

The subject matter of claims 1-9 is novel (PCT Article 33(1) and (2)).

The subject matter of the independent claim 1 are fungicidal mixtures for controlling rice pathogens, comprising fenhexamid and a specific fungicidal triazolopyrimidine (herein below referred to as TPI) in a synergistically effective amount. The remaining independent claims 4, 8 and 9 are directed at a method of controlling rice-pathogenic harmful fungi using such a mixture, seed

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Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability:
citations and explanations supporting such statement

resulting from such a method which comprises such a mixture, and to the use of the two compounds for the preparation of compositions for controlling rice-pathogenic harmful fungi.

None of the abovementioned prior art documents discloses the specific mixtures which are the subject matter of the present application.

D1 (see the passages cited in the international search report) discloses synergistic mixtures of triazolopyrimidines of a general formula, which also covers TP1, with other fungicides, among which also fenhexamid. The preferred azolopyrimidines A, B and C, which are also used in examples (herein below referred to as TPa, TPb and TPc) are the 6-(2-Cl-6-F-phenyl), the 7-(2,2,2-trifluoroethylamino) and the 7-(1,1,1-trifluoropropyl-2-ylamino) analogue of TP1. In the example (D1, example 26), TPc, the comparative substance of the present application, is used together with fenhexamid against *Blumeria graminis* in barley.

D2 (see the passages cited in the international search report) discloses *inter alia* specifically the compound TP1 (exemplary compound 2). The compound is compared with TPa with regard to its activity against powdery mildew on grapevines and found to be superior. The possibility of mixing it with other fungicides, among which fenhexamid is also mentioned, with the possibility of achieving a synergistic effect is mentioned, but not carried out.

D3 (see the passages cited in the international search report) discloses that fenhexamid is a fungicide which is particularly suitable for controlling *Botrytis* and related pathogens such as *monilinia* and *sclerotinia* and which acts by inhibiting the synthesis of sterols.

D4 (see the passages cited in the international search report) discloses certain fungicidal triazolopyrimidines, among which also TPa. The activity against *Pyricularia oryzae* on rice is demonstrated (see D4, examples 225 and 226).

WRITTEN OPINION OF THE
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International application No.

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Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement

D5 (see the passages cited in the international search report) discloses synergistic mixtures of triazolopyrimidines which are known, *inter alia*, from D4, with melanin biosynthesis inhibitors such as carpropamid, pyroquilon and fenoxanil. These mixtures are particularly effective against rice pathogens (*Pyricularia oryzae*, *Rhizoctonia solani* and *Cochliobolus miyabeanus*, which causes brown spot disease). The preferred compounds, which are referred to in D5 as azolopyrimidines A, C and D, are the abovementioned TPa, TPb and TPC, respectively.

D6 (see the passages cited in the international search report) discloses synergistic fungicidal mixtures which contain fenhexamid together with another fungicide selected from an enumeration which, however, does not comprise a triazolopyrimidine.

Finally, D7 (see the passages cited in the international search report) discloses synergistic mixtures of the fungicide iminoctadine together with fenhexamid.

Inventive step

The subject matter of claims 1-9 involves an inventive step (PCT Article 33(1) and (3)).

In the light of the description and of the closest prior art of the cited document D1, the problem on which the application is based can be seen in the provision of synergistic mixtures of triazolopyrimidines with other fungicides which are suitable for controlling rice pathogens, i.e. which combine a high systemicity with a good activity against pathogens such as *Pyricularia oryzae*, *Rhizoctonia solani* and *Cochliobolus miyabeanus*.

The proposed solution is characterized by the use of the specific triazolopyrimidine TP1 in combination with fenhexamid.

In the light of the above prior art, this combination is no obvious solution to the problem.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

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Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement

D1 proposes mixtures of triazolopyrimidines of a general formula which encompasses not only TPa, TPb and TPC, but also TP1, with fenhexamid. This document specifically discloses the mixture with the triazolopyrimidine TPC. The cited prior art document does not expressly mention the use for controlling rice pathogens. However, the triazolopyrimidines of the general formula are known from the prior art document D4 as being effective against rice pathogens; for example, this prior art document demonstrates the activity of TPa (compound 139 in D4) against *Pyricularia oryzae* by way of example (see example 226).

D5 (see hereinabove) discloses synergistic mixtures, of such triazolopyrimidines, among which, again, TPa and the TPC which is used in the present application as comparative substance, with other fungicides. These mixtures are effective in particular against rice pathogens such as *Pyricularia oryzae*, *Rhizoctonia solani* and *Cochliobolus miyabeanus*.

D2 emphasizes that the 6-(2,4,6-trifluorophenyl)triazolopyrimidines (such as, for example, TP1) which are disclosed in this prior art document have an increased systemicity and fungitoxic effect against rice pathogens in comparison with the triazolopyrimidines known from D4 (such as, for example, TPa and TPC) (see D2, page 7, lines 9-11). The good activity, specifically of TP1, against *Pyricularia oryzae* (= *Pyricularia grisea* f. sp. *oryzae*, teleomorph: *Magnaporthe* gr. f. sp. *oryzae*) and *Rhizoctonia solani* is demonstrated with reference to examples (see D2, table II).

D2 also proposes a mixture with other fungicides, among which fenhexamid, which might possibly lead to a synergistic effect (see the passages of the prior art document D2 which are cited in the search report).

However, in order to arrive at the combination according to the invention, starting from D1, it is necessary to replace not only one of the triazolopyrimidines preferred therein, for example TPC, specifically by TP1, which is mentioned in D2 besides other triazolopyrimidines, but also to choose, for this replacement, the combination with fenhexamid among all combinations mentioned in D1. Faced with the task of providing compositions for controlling rice

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Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement

pathogens, this choice is not obvious.

Fenhexamid is not known as being particularly effective against such pathogens, but is generally used as agent for controlling *Botrytis* (grey mould), for example on grapevines, and related pathogens such as *Monilinia* and *Sclerotinia* (see for example what is said in D3).

While D6 also mentions *Cochliobolus* as pathogen which can be controlled with the mixtures in D6, the mixtures are only tested against *Botrytis* in beans and *Leptosphaeria*, *Erysiphe* and *Pyrenophora* in wheat and barley.

Characteristically, the synergistic mixtures in D7 are only tested against grey mould in cucumbers.

The proposed solution of combining the triazolopyrimidine TP1 with fenhexamid is therefore not obvious.

Industrial applicability

The subject matter of claims 1-9 is considered to be industrially applicable (PCT Article 33(1) and (4)).